

**CLAIMS**

1. A method of grinding an inorganic particulate material in an aqueous suspension, wherein the said aqueous suspension includes a sub-effective amount  
5 of a dispersant for the inorganic particulate material.

2. A method according to claim 1, wherein the inorganic particulate material is calcium carbonate.

3. A method according to claim 1, wherein the inorganic particulate material is a hydrous kandite clay.

10 4. A method according to claim 3, wherein the hydrous kandite clay is kaolin.

5. A method according to any preceding claim, wherein the aqueous suspension comprises up to about 50% by weight of the inorganic particulate material.

15 6. A method according to any preceding claim, wherein the aqueous suspension includes up to about 0.25% by weight of dispersant, based on the dry weight of the inorganic particulate.

7. A method according to claim 6, wherein the aqueous suspension includes up to about 0.15% by weight of dispersant, based on the dry weight of the  
20 inorganic particulate.

8. A method according to claim 6, wherein the aqueous suspension includes up to about 0.1% by weight of dispersant, based on the dry weight of the inorganic particulate.

9. A method according to claim 6, wherein the aqueous suspension  
25 includes less than 0.05% by weight of dispersant, based on the dry weight of the inorganic particulate.

10. A method according to any preceding claim, wherein the dispersant comprises a polyacrylate.

11. A method according to any of claims 1 to 9, wherein the dispersant  
30 comprises a polymetaphosphate.

12. A method according to claim 11, wherein the polymetaphosphate is sodium hexametaphosphate or tetrasodium metaphosphate.

13. A method according to any preceding claim, wherein, after grinding, an additional amount of a dispersant is added to the aqueous suspension.

14. A method according to any preceding claim, wherein, after grinding, an amount of water is removed from the aqueous suspension.

5 15. A method according to any preceding claim wherein, after grinding, the solids level of the aqueous suspension is adjusted, to provide an aqueous suspension comprising the inorganic particulate material at a solids level above about 50% by weight and a dispersant.

10 16. A method according to any preceding claim, wherein the grinding of the inorganic particulate material takes place under grinding conditions such as to raise the steepness of the inorganic particulate material to a steepness factor above about 35.

15 17. A method according to claim 16, wherein the grinding conditions are such as to raise the steepness of the inorganic particulate material to a steepness factor above about 40.

18. A method according to claim 16, wherein the grinding conditions are such as to raise the steepness of the inorganic particulate material to a steepness factor above about 45.

20 19. A method according to any preceding claim, for grinding an inorganic particulate material in an aqueous suspension to obtain an inorganic particulate material of reduced particle size and increased steepness, wherein the aqueous suspension includes a sub-effective amount of a dispersant for the inorganic particulate material.

25 20. A method according to claim 19, wherein the aqueous suspension is dewatered after the grinding, to raise the solids content thereof to a content of inorganic particulate material above about 50% by weight.

21. A method according to any preceding claim, wherein the resultant ground inorganic particulate material is dried after treatment.

30 22. A method according to any preceding claim, wherein the resultant ground inorganic particulate material is added to a paper or paper pulp to provide a coating or filler therefore, or to a composition which is subsequently processed to obtain a paper.

23. A method according to any one of claims 1 to 21, wherein the resultant ground inorganic particulate material is added to a polymer or rubber, or to a composition which is subsequently processed to obtain a polymer or rubber.

24. A method according to claim 23, wherein the polymer is a plastics material.

25. A method according to claim 23, wherein the resultant polymer is formed into a film.

26. A method according to any one of claims 1 to 21, wherein the resultant ground inorganic particulate material is added to a paint, or to a composition which is subsequently processed to obtain a paint.

27. A method according to any one of claims 1 to 21, wherein the resultant ground inorganic particulate material is added to a sealant or mastic, or to a composition which is subsequently processed to obtain a sealant or mastic.

28. A method according to any one of claims 1 to 21, wherein the resultant ground inorganic particulate material is added to a ceramic, or to a composition which is subsequently processed to obtain a ceramic.

29. An aqueous suspension of a ground inorganic particulate material comprising a sub-effective amount of a dispersant for the inorganic particulate material.

30. An aqueous suspension according to claim 29, when prepared by a method according to any of claims 1 to 20.

31. An aqueous suspension of a ground inorganic particulate material comprising a dispersant-effective amount of a dispersant for the inorganic particulate material, when prepared by a method according to any of claims 1 to 18 and which includes the addition, after grinding, of an amount of a dispersant to the aqueous suspension.

32. A dry ground inorganic particulate material comprising an amount of a dispersant for the inorganic particulate material, the material being the dry residue of an aqueous suspension according to any one of claims 29 to 31.

33. A paper or paper pulp, when prepared by a method according to claim 22.

34. A polymer or rubber, when prepared by a method according to any one of claims 23 to 25.

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35. A paint, when prepared by a method according to claim 26.

36. A sealant or mastic, when prepared by a method according to claim

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37. A ceramic, when prepared by a method according to claim 28.

5 38. Use of a sub-effective amount of a dispersant for an inorganic particulate material, as a corrosion inhibitor in a low solids aqueous suspension of the particulate inorganic material.

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